

## NON COMMUNICABLE DISEASES IN CHILDREN: AYURVEDIC PERSPECTIVE

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## ABSTRACT

Non-communicable diseases are the group of diseases which do not transmit from person to person. They tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioral factors. Children are vulnerable to the risk factors contributing, whether from unhealthy diets, physical inactivity, exposure to tobacco smoke or harmful use of alcohol. The global disease burden affecting children in childhood and later in life is rapidly increasing, even though many of the risk factors can be prevented (WHO, 2016). Approximately 13 % of all NCD deaths occur among children under 20 years. Majority of NCDs which develop later in adulthood have their origin in early life even before the conception. *Ayurveda* represents the oldest complex medical system about healthy lifestyle principles. The establishment of these disorders can be prevented by various measures depicted in *Ayurveda* before conception, during pregnancy, during childhood and adolescence, which should influence global health and socioeconomic development.

**KEYWORDS:** Non-communicable diseases, risk factors, *Ayurveda*, prevention.

## INTRODUCTION

NCDs are medical conditions or diseases that are by definition non-infectious and non-transmissible, also known as chronic diseases tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioral factors. They are the leading public health challenges globally in the 21<sup>st</sup> century, resulting in ill health, economic loss, life loss, diminished quality of life, and poor social development equally in both high resourced and low resourced countries. The global burden of diseases is undergoing a rapid epidemiological transition shifting from infectious to non-communicable diseases. Driven largely by four main modifiable behavioral risk factors - tobacco use, harmful use of alcohol, physical inactivity and unhealthy diet - NCDs are a major hindrance to the development of a nation.

Non-communicable diseases also impact the health of children and adolescents. Cancer, diabetes (both Type 1 and Type 2 diabetes), chronic respiratory diseases (such as asthma), obesity, congenital and acquired heart disease, epilepsy and many endemic NCDs affect children and/or start in childhood. Each year, approximately 1.2 million people aged less than 20 years die from treatable NCDs (such as chronic respiratory illness and cancer), accounting for 13% of all NCD mortality. They cause 24.8% of disability-affected life years (DALYs) and 14.6% of deaths among children and

adolescents. Data reveals that 3 – 5% of all births result in congenital malformations. 20 – 30% of all infant deaths are due to genetic disorders, and 30 – 50% of post-neonatal deaths are due to congenital malformations; 11.1% of pediatric hospital admissions are for children with genetic disorders, 18.5% are children with other congenital malformations, 12% of adult hospital admissions are for genetic causes, and 50% of mental retardation has a genetic basis. 15% of all cancers have an inherited susceptibility and 10% of the chronic diseases (heart, diabetes, arthritis), which occur in the adult population have a significant genetic component.

Detection, screening, and management, as well as prevention of complications, are key components of therapeutic approach. These disorders require prolonged treatment and are expensive to treat. Thus, prevention and health promotion would be the key factors to reduce disease burden.

***Ayurvedic Perspectives***

Deaths due to non-communicable disease occur mainly in adulthood, but many have their origins in early life, including through epigenetic mechanisms operating before conception. The risk of NCDs can be prevented through various modalities before conception to child-birth, during childhood and adolescence and may be more cost effective than managing established NCDs in

later life with costly tests and drugs. These are as follows:

### A. Preconception care

Various rituals and regimes are described in our classical texts to be followed before achievement of conception to obtain a desired progeny. It begins with the selection of the right partners. The concept of *Atulyagotravivah* (non-consanguineous marriage) to reduce the risk of hereditary diseases and to avoid congenital anomalies is of utmost importance in this context.

Further the couple should be purified by body purification (*Panchakarma*) procedures like *Vamana*, *Virechana*, and *Basti* and should be brought back to normalcy by prescribed diet. They should also perform *Putrestiyagna* for a healthy progeny. Both partners should follow celibacy for one month prior to conception, especially the woman should follow celibacy and go through strict regime during the first three days of menstruation to avoid offspring with less longevity and deformed parts. The best time to conceive, as mentioned, is from 4<sup>th</sup> to 12<sup>th</sup> day of menstrual cycle.

Practice of *Yoga & Pranayam* can be especially helpful in providing a systematic method of producing complete physical, mental & emotional relaxation for both partners before conception.

Observance of all these methods before conception ensures the basis of a healthy progeny.

### B. Antenatal care

A comprehensive description about *Garbhini Paricharya*, a holistic approach to maintain the health of mother and child during pregnancy is mentioned in *Ayurveda*. This corresponds to the growth and development of the fetus and comprises of measures related to *Aahar* (diet), *Vihar* (activity) and *Vichar* (thoughts/emotions). *Garbhini Paricharya*, a regimen from 1<sup>st</sup> to 9<sup>th</sup> month of pregnancy, helps to reduce the risk of adverse health effect on woman & fetus and risk of hereditary diseases in the offspring.

In our classics, there is description of specific month-wise dietetic regimens (*Masanumasika Paricharya*) for a pregnant woman, to compensate the requirements of a mother as well as the growing fetus at the particular time period of intrauterine life.

*Garbhaupghatkar Bhavas* i.e. various factors that may hamper the embryogenesis and can result in various known and unknown pathologies in the form of congenital anomalies are specified in our classics. This fact is well supported by contemporary science that exposure to toxins, alcohol etc. during the antenatal period may show teratogenic effects on embryo.

Special emphasis has been laid on the fulfillment of desires during *Dauhrida Avastha* i.e. during pregnancy,

which may influence the psychology of both the mother and fetus. Recent researches also suggest that antenatal stress and anxiety as early as in 18 weeks of pregnancy has a programming effect on the fetus, which lasts at least until middle childhood, and may show up as behavioral problems, such as, dyslexia, hyperactivity, and attention deficit disorder.

### C. Childhood and Adolescence care

The prevalence of NCDs is increasing day by day in children and adolescents due to wrong choices of lifestyles including wrong dietary habits, excessive uses of packed and junk foods, not taking proper sleep, not doing exercise, tension of studies, depression related to career, unhealthy competition, alcohol and drug abuse etc. *Ayurveda* has a great deal of wisdom that can be easily applied to children as adults to prevent these disorders. It can help correct imbalances that may be springing up in our kids, as well as it has the potential to set our children on a lifelong path toward optimal health and well-being. *Ayurveda* describes quality measures to prevent and manage NCDs in the forms of proper dietary management, lifestyle advises like *Dincharya*, *Ritucharya*, *Sadvritta*, *Achararasyana*; *Panchakarma* like detoxification and bio-purification procedures and *Rasayana* therapies.

Following are the regimens which can be exercised to manage NCDs:

- **Achara Rasayana:** The concept of *Achara Rasayana* is introduced by *Acharya Charak*. It refers to the right code of socio-behavioral conduct. It teaches us a preferred lifestyle with defined do's and don'ts rules and regulations.
- **Dincharya:** Normal circadian rhythms are very important in day to day life to maintain biological clock. In this context '*Dincharya*' mentioned in our *Ayurvedic* classics should be of utmost importance for maintaining a healthy life. It helps to establish balance in one's biological clock, aids digestion, absorption and assimilation, and generates self-esteem, discipline, peace, happiness and longevity.
- **Ritucharya:** Refers to various rules and regimens (*Charya*), regarding diet and lifestyle to acclimatize seasonal enforcement easily without altering body homeostasis. The prime objective of *Ayurvedic* system of medicine is preventive aspect, which can be achieved by the modification in diet and lifestyle in response to change in climatic condition.
- **Sadvritta:** Code of conducts for keeping good condition of body and mind. It explains rules for maintaining a healthy state of body and mind.
- **Ahara:** Considered as *Prana* (basis of life) in *Ayurveda* and is also described as one of the *Trayopastambha* (three subsidiary pillars) of life. Use of *Hita-ahara* (wholesome diet) promotes health and longevity and *Ahita-ahara* (unwholesome diet) promotes manifestation of different disorders. Unfortunately in modern era the concept of *Hita-ahara* is continuously being ignored leading to the

emergence of lifestyle disorders. *Ayurveda* offers different *Pathay-apathya* (do's & don'ts) regarding diet/dietary supplementations which definitely help in the prevention and management of a wide range of lifestyle disorders. *Ayurveda* also described eighteen types of dietary incompatibilities (*Viruddha Ahara*), which should be avoided to maintain health and longevity.

- **Nidra:** *Nidra* (sleep) is one of the three pillars for healthy sustenance of body. Proper sleep habit is essential to maintain health and to live a long life deprived of disease. Improper sleep is one of the risk factors for life style diseases like stress, obesity, diabetes. In *Charak Samhita Nidana Sthana*, it is stated that excessive sleep is the causative factor for *Prameha*. Prolonged sleep curtailment leads general enhancement of markers for inflammatory activity e.g. C-reactive protein. Happiness, nourishment, strength, emaciation, weakness, sterility, life and death all these depending on the proper or improper sleep. Recent research has proved behavioral sleep deprivation result in alternation in glucose metabolism, increased level of pro-inflammatory cytokines and low grade inflammation.
- **Panchakarma:** It is a collective term used to address the five principal procedures of bio-purification. They are *Vaman* (therapeutic emesis), *Virechan* (therapeutic purgation), *Asthapan Basti* (therapeutic decoction enema), *Anuvasana Basti* (therapeutic oil enema) and *Nasya Karma* (nasal medication). These procedures are used in order to cleanse the body channels, to eliminate toxins out of the body, brings about the harmony of the *Doshas* to obtain long-lasting beneficial effects on health. These *Panchakarma* procedures emphasize more on the preventive aspect rather than curative. It also facilitates the absorption of nutrient and drugs administered thereafter in favour to attain their desired pharmacotherapeutic effects. *Panchakarma* also restore the mental health, reduces the stress and therefore, help in the prevention as well as management of many lifestyle disorders.
- **Rasayana:** This is one of the most effective rejuvenation therapies of *Ayurveda* that keeps the body young and agile and helps to promote health and longevity in the body in addition to the treatment of various ailments. Various studies on *Rasayana* drugs suggest that they can be used as immunomodulator, adaptogenic, antioxidant, nootropic, anti stress agents. Therefore, by proper use of *Rasayana* a person can get a happy healthy long life.
- **Yoga and Pranayama:** Routine physical activity is central to life-long health and wellbeing. It promotes muscular and cardiorespiratory fitness enhances bone and functional health, and helps prevent depression and promote mental health. At least 60 minutes of moderate to vigorous intensity activity daily for children aged 5 to 17 years is necessary to maintain a healthy body. Yoga is a valuable tool to

increase physical activity, creating healthy individual and decrease non communicable diseases.

- **Samskara:** In *Ayurveda* a newly born child is considered as a '*Tabula Rasa*' i.e. a blank site on which parents and the world "write" to create the individual. *Samskara* are rites performed with an objective of imparting positive qualities in a person. It affects the psycho-socio-emotional development of the child during their developmental stages. It also improves a person by removing his undesirable attributes. It takes care of not only physical and mental health but also prevents various diseases.

## CONCLUSION

Childhood is the period when a child learns most. So, a good lifestyle if implemented through *Ayurvedic* measures will result in lower morbidity and mortality in children due to non-communicable diseases, as most of them are preventable. Daily routine is considered critically important to our overall health and wellness, and a routine may be even more important for children. Routines create safety, stability, and trust for a child's nervous system while supporting their physiology to develop healthy habits. To further support wellness, it is highly appropriate to place healthy limits on screen time, to give our children access to the outdoors, and to encourage playful activity. Children and their wonderful childhood is the unique gift of nature. In fact, childhood is the foundation of a healthy, happy, simple and cultural life and hence a strong nation. No child should die unnecessarily without care and certainly no child should suffer if we have the means to prevent it.

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